

Appl. No. 10/605,427
Amdt. dated July 4, 2005
Reply to Office action of April 04, 2005

REMARKS

Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Mehr (Fig.1a)

Response:

Applicant has amended independent apparatus claim 1 to state that each of the various
5 gain modes having at least one corresponding resistive negative feedback circuit. Similarly,
independent method claim 8 is amended to include providing at least one resistive negative
feedback circuit for each of the various gain modes, each resistive negative feedback circuit
being electrically connected to the gain circuit and the input signal.

No new matter is entered by the amendments to claim 1 and 8. In particular, as shown
10 in Fig.5 and described in paragraph [0030], "the high gain resistive negative feedback circuit
67 is mainly used to process the feedback signal in the high-gain mode, and the low gain
resistive negative feedback circuit 69 is used to process the feedback signal in the low-gain
mode". As shown in Fig.6 and described in paragraph [0031], "in the high-gain mode, the
second switch device 85 is opened, and the first switch device 83 is closed so that the
15 feedback signal can be fed back from the output port 86 to the input port 82 totally via the
high gain resistive negative feedback circuit 87. On the other hand, in the low-gain mode, the
first switch device 83 is opened, and the second switch device 85 is closed so that the
feedback signal can be fed back from the voltage source VCC' to the input port 82 totally via
the low gain resistive negative feedback circuit 89". Additionally, as described in paragraph
20 [0032] and shown in Fig.7, "the number of gain modes is not limited to just two". More
specifically, as stated in paragraph [0032], in a third "medium-gain mode", the resistive
negative feedback circuit is the effective circuit formed when "the first switch device 83 and
the second switch device 85 both conduct". "That is, the main characteristic of the present
invention is utilizing a plurality of resistive negative feedback circuits, which are installed
25 with corresponding switch devices and located in a plurality of paths the feedback signal
passes in various gain modes, to respectively process the feedback signal in various gain
modes in order to keep the input impedance of the amplifier substantially fixed in various

Appl. No. 10/605,427
Amdt. dated July 4, 2005
Reply to Office action of April 04, 2005

gain modes.” (Paragraph [0032])

Applicant asserts that Mehr does not teach providing at least one resistive negative feedback circuit for each of the various gain modes and therefore does not anticipate the present invention as claimed in currently amended claims 1 and 8. Mehr shows in Fig. 1a a
5 variable gain amplifier 100 that includes two sets of resistor networks 104a and 104b. As Mehr states in column 2 line 53, “each set of resistors has $n+1$ resistors”, and on line 60 of the same column, “switching of resistors $R_{1a}-R_{(n+1)a}$ $R_{1b}-R_{(n+1)b}$ provides for the variable gain function of VGA 100”. As shown, there are only two feedback resistors 112a and 112b providing two feedback paths (which actually form only one differential feedback path) that
10 remain constant regardless of the gain mode. For this reason, applicant asserts the circuit structure of Mehr does not include at least one corresponding resistive negative feedback circuit for each of the various gain modes and therefore does not anticipate the present invention.

Moreover, applicant asserts that providing at least one resistive negative feedback
15 circuit for each of the various gain modes is not obvious given the teachings of the Mehr. In column 3 lines 49-53, Mehr explicitly states the reason that fixed feedback resistors are utilized according to his invention. Specifically, that “by providing a fixed feedback resistance R_f in the feedback paths, the time constant, and implicitly, the pole location is adjustable independently from the switching of the resistors to effect a gain change of VGA
20 100”. Applicant asserts it would not be obvious for a person to deduce having at least one different resistive negative feedback circuit for each of the various gain modes from the teachings of Mehr because Mehr specifically teaches away from this configuration. Because the teachings of Mehr neither anticipate nor render the present invention obvious, applicant asserts currently amended claims 1 and 8 should be found allowable over Mehr.
25 Consideration of currently amended claims 1 and 8 is respectfully requested.

Because claims 2-7 and 9-13 are dependent claims on currently amended claims 1 and 8, respectively, if currently amended claims 1 and 8 are found allowable, the dependent claims should also be found allowable. Additionally, applicant has further amended

Appl. No. 10/605,427
Amdt. dated July 4, 2005
Reply to Office action of April 04, 2005

dependent apparatus claims 2, 3, 5, and the corresponding dependent method claims 9, 10, 11, 12. No new matter is entered. Concerning the patentability of claims 2 and 9 with respect to the cited reference, applicant points out that Mehr does not teach that in each of the various gain modes, making a feedback signal be fed back to the input port via at least a resistive
5 negative feedback circuit corresponding to a current gain mode. Concerning the patentability of claim 10 with respect to the cited reference, applicant points out that Mehr does not teach that the switch device is electrically connected in series with a predetermined resistive negative feedback circuit for controlling whether the feedback signal is fed back to the input port via the predetermined resistive negative feedback circuit. Concerning the patentability of
10 claims 3 and 11 with respect to the cited reference, applicant points out that Mehr does not teach that a plurality of switch devices are respectively electrically connected in series with the plurality of resistive negative feedback circuits for controlling whether a respective feedback signal is fed back to the input port via each of the plurality of resistive negative feedback circuits according to a current gain mode. And concerning the patentability of
15 claims 5 and 12 with respect to the cited reference, applicant points out that Mehr does not teach that the resistive negative feedback circuits are respectively a resistor being electrically connected in series with a capacitor. Consideration of dependent claims 2-7 and 9-13 is respectfully requested.

New claims

20 Applicant has also added new dependent apparatus claims 23 and 24 being dependent on claim 3 and base claim 1, and corresponding dependent method claims 25 and 26 being dependent on claim 10 and base claim 8. No new matter is entered by the new claims 23-26. Because the new claims are dependent on currently amended claims 1 and 8, if currently amended claims 1 and 8 are found allowable, the new dependent claims should also be found
25 allowable. Additionally, concerning the patentability of claims 23 and 25 with respect to the cited reference, applicant points out that Mehr does not teach turning on the switch when the gain circuit is operating in a predetermined gain mode corresponding to the predetermined resistive negative feedback circuit, and turning off the switch when the gain circuit is

Appl. No. 10/605,427
Amdt. dated July 4, 2005
Reply to Office action of April 04, 2005

operating in a gain mode other than the predetermined gain mode. Concerning the
patentability of claims 24 and 26 with respect to the cited reference, applicant points out that
Mehr does not teach a differential configuration having a plurality of negative side resistive
negative feedback circuits, where each of the various gain modes has at least one
5 corresponding negative side resistive negative feedback circuit. Consideration of new claims
23-26 is respectfully requested.

Sincerely yours,

10 Winston Hsu

Date: July 4, 2005

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

15 e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C.
is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)